

Acronyms and Abbreviations

ALPI	Aleutian Low Pressure Index	kW	Kilowatt
BA	Biological Assessment	m	Meter
BIA	Bureau of Indian Affairs	M&I	Municipal and Industrial
BLM	Bureau of Land Management	mm	Millimeter
BNF	Boise National Forest	NAWQA	National Water Quality Assessment
BPA	Bonneville Power Administration	NEPA	National Environmental Policy Act
BRT	Biological Review Team	NFRC	North Fork Reservoir Company
BRWG	Biological Requirements Work Group	NOAA Fisheries	National Marine Fisheries Service
CBFWA	Columbia Basin Fish and Wildlife Authority	NPCC	Northwest Power and Conservation Council (also NPPC)
cfs	Cubic feet per second	NTU	Nephelometer Turbidity Unit
cm	Centimeter	ODEQ	Oregon Department of Environmental Quality
CR	Conservation Recommendation	ODFW	Oregon Department of Fish and Wildlife
CRITFC	Columbia River Inter-Tribal Fish Commission	O&M	Operations and Maintenance
CWA	Clean Water Act	PBERP	Pacific Bald Eagle Recovery Plan
DDT	Dichlorodiphenyltrichloroethane	PCB	Polychlorinated biphenyl
DO	Dissolved Oxygen	PCI	Pacific Circulation Index
DPS	Distinct Population Segment	PFMC	Pacific Fishery Management Council
EA	Environmental Assessment	PDO	Pacific Decadal Oscillation
EBSM	Ecologically Based System Management	Reclamation	U.S. Bureau of Reclamation
EFH	Essential Fish Habitat	RM	River Mile
ENSO	El Niño-Southern Oscillation	RMP	Resource Management Plan
EPA	Environmental Protection Agency	RPM	Reasonable and Prudent Measure
ESA	Endangered Species Act	Services	USFWS and NOAA Fisheries
ESPA	Eastern Snake Plain Aquifer	SST	Sea-surface Temperature
ESU	Evolutionarily Significant Unit	T&C	Terms and Conditions
FCRPS	Federal Columbia River Power System	TDG	Total Dissolved Gas
FERC	Federal Energy Regulatory Commission	TFCC	Twin Falls Canal Company
FONSI	Finding of No Significant Impact	TMDL	Total Maximum Daily Load
FPC	Fish Passage Center	TSS	Total Suspended Solids
FR	Federal Register	USACE	U.S. Army Corps of Engineers
GYA	Greater Yellowstone Area	USBR	U.S. Bureau of Reclamation
GYBEWG	Greater Yellowstone Bald Eagle Working Group	USDOC	U.S. Department of Commerce
HUC	Hydrologic Unit Code	USFS	U.S. Forest Service
IAC	Idaho Administrative Code	USFWS	U.S. Fish and Wildlife Service
ICBTRT	Interior Columbia Basin Technical Recovery Team	USGS	U.S. Geological Survey
IDEQ	Idaho Department of Environmental Quality	VSP	Viable Salmonid Population
IDFG	Idaho Department of Fish and Game	WDFW	Washington Department of Fish and Wildlife
IDHW	Idaho Department of Health and Welfare	WGFD	Wyoming Game and Fish Department
IDWR	Idaho Department of Water Resources	WLCTRT	Willamette Lower Columbia Technical Review Team
IWRB	Idaho Water Resource Board	WOC	Washington-Oregon-California
IWRRI	Idaho Water Resources Research Institute		
km	Kilometer		

On the cover: Sun setting at Palisades Reservoir on the South Fork of the Snake River.

Federal storage facilities included in the proposed actions.

Storage Facility ¹	Stream and River Mile	Active Capacity ² (acre-feet)	Powerplant Owner	Operating and Maintaining Entity
Minidoka Project				
Jackson Lake Dam	Snake River 988.9	847,000	No powerplant	Reclamation
Grassy Lake Dam	Grassy Creek 0.5	15,200	No powerplant	Fremont-Madison Irrigation District
Island Park Dam	Henry Fork 91.7	135,205	Non-Federal	Fremont-Madison Irrigation District
American Falls Dam	Snake River 714.0	1,672,590	Non-Federal	Reclamation
Minidoka Dam	Snake River 674.5	95,200	Reclamation	Reclamation
Palisades Project				
Palisades Dam	Snake River 901.6	1,200,000	Reclamation	Reclamation
Ririe Project				
Ririe Dam	Willow Creek 20.5	80,541	No powerplant	Reclamation
Little Wood River Project				
Little Wood River Dam ³	Little Wood River 78.8	30,000	Non-Federal	Little Wood River Irrigation District
Owyhee Project				
Owyhee Dam	Owyhee River 28.5	715,000	Non-Federal	Owyhee Irrigation District
Boise Project				
Anderson Ranch Dam	S.F. Boise River 43.5	413,074	Reclamation	Reclamation
Arrowrock Dam	Boise River 75.4	272,224	No powerplant	Reclamation
Hubbard Dam	New York Canal	1,177	No powerplant	Boise Project Board of Control
Deer Flat Dams	New York Canal	159,365	No powerplant	Boise Project Board of Control
Deadwood Dam	Deadwood River 18.0	153,992	No powerplant	Reclamation
Cascade Dam	N.F. Payette River 38.6	646,461	Non-Federal	Reclamation
Lucky Peak Project				
Lucky Peak Dam ⁴	Boise River 64.0	264,371	Non-Federal	Army Corps of Engineers
Vale Project				
Warm Springs Dam ⁵	Malheur River 114.0	169,714	No powerplant	Warmsprings Irrigation District
Agency Valley Dam	N.F. Malheur River 15.0	59,212	No powerplant	Vale Oregon Irrigation District
Bully Creek Dam	Bully Creek 12.5	23,676	No powerplant	Vale Oregon Irrigation District
Mann Creek Project				
Mann Creek Dam	Mann Creek 13.2	10,900	No powerplant	Mann Creek Irrigation District
Burnt River Project				
Unity Dam	Burnt River 63.6	24,970	No powerplant	Burnt River Irrigation District
Baker Project				
Mason Dam	Powder River 122.0	90,540	No powerplant	Baker Valley Irrigation District
Thief Valley Dam	Powder River 70.0	13,307	No powerplant	Lower Powder River Irrigation District

¹ Reclamation owns all facilities unless otherwise indicated.

² Active capacity is the volume of storage space that can be filled and released for specific purposes.

³ The Little Wood River Irrigation District owns the Little Wood River Dam.

⁴ The Army Corps of Engineers owns Lucky Peak Dam; Reclamation administers water service and repayment contracts for irrigation.

⁵ Reclamation has a one-half interest in Warm Springs Reservoir and associated storage.

Federal diversion facilities included in the proposed actions.

Diversion Facility	Stream	Owner	Operating and Maintaining Entity
Minidoka Project			
Cascade Creek Diversion Dam	Cascade Creek	United States	Fremont-Madison Irrigation District
Minidoka Northside Headworks	Snake River	United States	Minidoka Irrigation District
Minidoka Southside Headworks	Snake River	United States	Burley Irrigation District
Unit A Pumping Plant	Snake River	United States	A & B Irrigation District
Milner-Gooding Canal Headworks	Snake River	United States	American Falls Reservoir District No. 2
Michaud Flats Project			
Falls Irrigation Pumping Plant	Snake River	United States	Falls Irrigation District
Owyhee Project			
Tunnel No. 1	Owyhee River	United States	Owyhee Irrigation District
Dead Ox Pumping Plant	Snake River	United States	Owyhee Irrigation District
Ontario-Nyssa Pumping Plant	Snake River	United States	Ontario-Nyssa and Owyhee Irrigation Districts
Gem Pumping Plants #1 and #2	Snake River	United States	Gem Irrigation District
Boise Project			
Boise River Diversion Dam	Boise River	United States	Boise Project Board of Control ¹
Black Canyon Diversion Dam	Payette River	United States	Reclamation
Vale Project			
Harper Diversion Dam	Malheur River	United States	Vale Oregon Irrigation District
Bully Creek Diversion Dam	Bully Creek	United States	Vale Oregon Irrigation District
Mann Creek Project			
Mann Creek Dam Outlet	Mann Creek	United States	Mann Creek Irrigation District
Baker Project			
Savely Dam and Lilley Pumping Plant	Powder River	United States	Lower Powder River Irrigation District

¹ The Boise Project Board of Control operates and maintains the dam. Reclamation operates and maintains the powerplant.

Federal powerplants included in the proposed actions.

Powerplant	Stream	Impoundment	Nameplate Rating
Palisades Powerplant	Snake River	Palisades Dam	176,600 kW
Inman and Minidoka Powerplants	Snake River	Minidoka Dam	28,500 kW
Anderson Ranch Powerplant	South Fork Boise River	Anderson Ranch Dam	40,000 kW
Boise River Diversion Powerplant	Boise River	Boise River Diversion Dam	1,500 kW
Black Canyon Powerplant	Payette River	Black Canyon Diversion Dam	8,000 kW

RECLAMATION

Managing Water in the West

Biological Assessment for Bureau of Reclamation
Operations and Maintenance in the Snake River Basin
Above Brownlee Reservoir

Baker Project
Boise Project
Burnt River Project
Little Wood River Project
Lucky Peak Project
Mann Creek Project
Michaud Flats Project
Minidoka Project
Owyhee Project
Palisades Project
Ririe Project
Vale Project



U.S. Department of the Interior
Bureau of Reclamation
Pacific Northwest Region
Snake River Area

November 2004

The mission of the Department of the Interior is to protect and provide access to our Nation's natural and cultural heritage and honor our trust responsibilities to tribes.

The mission of the Bureau of Reclamation is to manage, develop, and protect water and related resources in an environmentally and economically sound manner in the interest of the American public.

How to Read This Document

To read this biological assessment more effectively, carefully study this page. We have designed and written this biological assessment to:

- Document analysis of the effects of the proposed actions on Endangered Species Act listed species and designated critical habitat.
- Request concurrence for “not likely to adversely affect” conclusions.
- Request formal consultation for “likely to adversely affect” conclusions.
- Present the effects on essential fish habitat (EFH) as required under the Magnuson-Stevens Fishery Conservation and Management Act.

This **introductory section** contains a list of acronyms and abbreviations, the frontispiece, and the table of contents. Each chapter contains its own list of **literature cited**.

Part I contains information relevant to both the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NOAA Fisheries).

Chapter 1 provides the preliminary information and background on this ESA Section 7 consultation that is helpful in reading the rest of the document.

Chapter 2 describes the proposed actions and action areas.

Chapter 3 contains an overview of the upper Snake River basin, a description of past hydrologic conditions, and a description of the model Reclamation used to simulate hydrologic conditions of the 11 proposed actions.

Part II contains the chapters relevant to only the USFWS.

Chapters 4 through 8 provide information and analysis on aquatic snails, bald eagle, bull trout, gray wolf, and Ute ladies’-tresses.

Part III contains the chapters relevant to only NOAA Fisheries.

Chapter 9 provides information and analysis on listed salmon and steelhead Evolutionarily Significant Units (ESUs).

Chapter 10 provides information and analysis on essential fish habitat for the salmon and steelhead ESUs.

Part IV contains the biological assessment’s **appendices**.

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